CytoBrite® Duo
Slide Incubation System
USER MANUAL

Cat. #2019-20-1 (115/230V)

FOR RESEARCH USE ONLY

470F Lakeside Drive, Sunnyvale, CA 94085-4720 USA • Tel 408-733-7337 • Fax 408-733-7336 • techserv@scigene.com

Serial Number

The following serial number identifies the specific instrument you have purchased and must be referenced when requesting service. A copy is affixed to the instrument.

Technical Service: (408) 733-7337, techserv@scigene.com

Warranty

SciGene warrants that the heating unit described in this manual shall be free of defects in materials and workmanship for a period of 12 months from date of delivery. This warranty does not cover removable slide trays or accessories. In the event of a defect during the warranty period, SciGene's limit of liability will be to provide replacement parts at no charge or, at its sole discretion, replace the product. The foregoing warranty is void in the event the unit was abused or modified or used in a manner inconsistent with its intended purpose. SciGene makes no other warranty, expressed or implied including warranties of merchantability and fitness for a particular purpose. In no event shall SciGene be liable for any direct, indirect, special, incidental or consequential damages or for any damages resulting from loss arising out of or in connection with the sale, use or performance of the product.

Copyright

Copyright ©2014 SciGene Corporation. All rights reserved. SciGene, CytoBrite and CytoBond are trademarks of SciGene Corporation, Sunnyvale, CA. All other trademarks used in this manual are the property of their respective owners.

Table of Contents

I. SAFETY NOTICES 3
A. Intended Use 3
B. Instrument Safety 3
C. Symbols and Conventions 3
D. Warnings 4
E. Cautions 5
F. Electromagnetic Compatibility (EMC) 5
G. FCC Warnings and Notes 5
H. Compliance 6
II. UNPACKING AND SET UP 7
A. Unpacking the System 7
B. Items Provided 7
C. Coverslip Sealant Requirements 7
D. Environmental Requirements 7
E. Voltage Selection and Fuse Type 7
F. Lid Configuration 8
G. Installation 8
III. USING YOUR CYTOBRITE DUO SYSTEM 9
A. Main Components, Controls and Accessories 9
B. Voltage Selector and Connections 10
C. Using CytoBond Removable Coverslip Sealant 10
D. Handling Slide Trays 10
E. Using the Temperature Controllers 11
F. Calibrating the Temperature Controllers 11
IV. MAINTAINING YOUR CYTOBRITE DUO SYSTEM 12
A. Powering Off 12
B. Cleaning the Instrument 12
C. Checking and Replacing Fuses 12
V. TROUBLESHOOTING 13
VI. SPECIFICATIONS 13
VII. RELATED INSTRUMENTS, REAGENTS AND ACCESSORIES 13

I. SAFETY NOTICES

A. Intended Use

The **CytoBrite® Duo Slide Incubation System** is a dual temperature slide heating instrument for FISH/ISH applications. The instrument should only be used according to the instructions provided in this manual. If the equipment is used in a manner not specified by the manufacturer (SciGene), protection provided by the equipment may be impaired.

La CytoBrite système est destiné pour le chauffage d'échantillons biologiques. L'instrument ne devrait servir que selon les instructions fournies dans ce manuel de l'utilisateur et d'autres documents techniques de SciGene. Si l'équipement est utilisé de manière non spécifiée par le fabricant, la protection assurée par l'équipement peut être compromise.

B. Instrument Safety

Before operating the instrument, read the information in this section concerning hazards and potential hazards. Ensure that anyone involved with the instrument's operation is instructed in both general safety practices for laboratories and specific safety practices for the instrument.

Avant le fonctionnement de l'instrument, lisez les renseignements dans cette section concernant les risques et les dangers potentiels. S'assurer que toute personne impliquée avec le fonctionnement de l'instrument est instruit dans les pratiques générales de sécurité pour les laboratoires et les pratiques de sécurité spécifiques pour l'instrument. Avant le fonctionnement de l'instrument, lisez les renseignements dans cette section concernant les risques et les dangers potentiels. S'assurer que toute personne impliquée avec le fonctionnement de l'instrument est instruit dans les pratiques générales de sécurité pour les laboratoires et les pratiques de sécurité spécifiques pour l'instrument.

C. Symbols and Conventions

The following chart is an illustrated glossary of the electrical symbols that are used on the **CytoBrite Duo Slide Incubation System**. Whenever such symbols appear on instruments, please observe appropriate safety measures.

Le tableau suivant est un glossaire illustré des symboles électriques qui sont utilisées sur le système. Chaque fois que ces symboles apparaissent sur les instruments, veuillez observer les mesures de sécurité appropriées.

1. Electrical Symbols

This symbol indicates that this is a protected ground terminal that must be connected to earth ground before any other electrical connections are made to the instrument.

Ce symbole indique qu'il s'agit d'un terminal de terrain protégé qui doit être connecté à la terre avant que toutes les autres connexions électriques sont apportées à l'instrument.

CAUTION: This symbol alerts you to consult this User Manual for further information and to proceed with caution.

ATTENTION: Ce symbole vous avertit à consulter ce guide de l'utilisateur pour plus d'informations et de procéder avec prudence.

This symbol indicates the OFF position of the main POWER switch.

Ce symbole indique la position OFF de l'interrupteur principal.

This symbol indicates the ON position of the main POWER switch.

Ce symbole indique la position ON de l'interrupteur principal.

2. **Non-Electrical Symbols**

CAUTION: This symbol illustrates a heat hazard. Proceed with caution when working around these areas to avoid being burned by hot components.

ATTENTION: Ce symbole illustre un danger pour la chaleur. Faire preuve de prudence lorsque vous travaillez autour de ces zones pour éviter d'être brûlé par les composants du chauds.

CAUTION: This symbol alerts you to consult this Operator's Manual for further information and to proceed with caution.

ATTENTION: Ce symbole vous avertit à consulter ce guide de l'utilisateur pour plus d'informations et de procéder avec prudence.

D. Warnings

Failure to comply with the following warnings that are affixed to the product can lead to possible personal injury or death.

Défaut de respecter les avertissements suivants qui sont apposées sur le produit peut conduire à possibles lésions corporelles ou la mort.

This symbol on the rear of the instrument indicates the presence of the fuse box. **Warning: For Continued Protection Against Fire, Replace Only with Same Type Rating of Fuse.** Always disconnect the power cord before attempting to replace the fuse.

Ce symbole sur l'arrière de l'instrument indique la présence de la boîte de fusibles. ***Avertissement: Pour le maintien de la Protection contre l'incendie, remplacer uniquement avec la même cote de Type de fusible.*** *Toujours débrancher le cordon d'alimentation avant d'essayer de remplacer le fusible.*

E. Cautions

Failure to comply with the following cautionary statement affixed to the product may lead to possible personal injury.

Omission de se conformer à la mise en garde suivante apposée sur le produit peut entraîner des blessures possibles.

This symbol located in front of the heat blocks indicates the potential presence of a Hot Surface. Use care when working in this area to avoid being burned.

Ce symbole situé en face des blocs de chaleur indique la présence éventuelle d'une surface chaude. Faire preuve de diligence lorsqu'il travaille dans ce domaine pour éviter d'être brûlé.

This symbol located on the back of the instrument warns the user to select the correct voltage before connecting the power cord. Operating with the voltage selector switch in the wrong position will damage the instrument and create a safety hazard.

Ce symbole situé à l'arrière de l'appareil avertit l'utilisateur de sélectionner la tension correcte avant de brancher le cordon d'alimentation. Fonctionnant avec le sélecteur de tension dans la mauvaise position peut endommager l'appareil et créer un risque de sécurité.

F. Electromagnetic Compatibility (EMC)

The **CytoBrite Duo Slide Incubation System** is a Class A digital device under FCC Title 47 Part 15B and designated as Class A electrical equipment for measurement, control, and laboratory use (EN61326).

Note regarding Canadian EMC compliance: Le present appareil numerique n'emet pas de bruits radioelectrique depassant les limites applicables aux appareils numeriques de class A prescrites dans le reglement sur le brouillage radioelectrique edicte par le Ministere des Communications du Canada.

G. FCC Warnings and Notes

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. The instrument qualifies as an "exempted device" under 47 CFR 15.103(c), in regard to the cited FCC regulations in effect at the time of manufacture. Shielded cables must be used with this unit to ensure compliance with the Class A FCC limits.

H. Compliance

1. Electromagnetic Compatibility (CE)

All instruments shipped to the European Union (EU; formerly known as the European Community) have the "CE" label on the back of the instrument, signifying that these instruments comply with the Electromagnetic Compatibility and Low Voltage Directives.

2. Restriction of Hazardous Substances (RoHS)

The RoHS directive was adopted in February 2003 by the European Union. It restricts (with exceptions) the use of six hazardous materials (including lead and mercury) in the manufacture of various types of electronic equipment. All SciGene instruments carrying the CE mark are also RoHS compliant.

3. Electrical and Electronic Equipment Waste (WEEE)

WEEE is a European Community directive that became European Law in February 2003. The crossed out wheelie bin symbol on a product or its packaging indicates that it must NOT be disposed of with standard waste at the end of its lifetime. Instead, it is your responsibility to return it to a designated collection point for electronic equipment recycling. Contact your local SciGene distributor for information on drop off locations.

II. UNPACKING AND SET UP

A. Unpacking the System

The **CytoBrite Duo Slide Incubation System** is shipped in a single carton with empty slide trays placed in the heat blocks. Remove any packing material around the instrument and lift out; taking care not to damage the hinged lids. Carefully inspect for damage.

If the instrument is damaged upon arrival, please retain all shipping materials and contact SciGene or your local distributor for assistance.

B. Items Provided

The following items are included with the CytoBrite Duo instrument:

- 2x Slide Trays
- Power Cord
- User Manual

C. Coverslip Sealant Requirements

Ready-to-use **CytoBond Removable Coverslip Sealant** (SciGene cat. #2020-00-1) is required for use of the **CytoBrite Duo System**. **CytoBond Sealant** is used to temporarily seal coverslips to slides, providing an evaporative seal over prolonged incubations and high temperatures without humidification.

D. Environmental Requirements

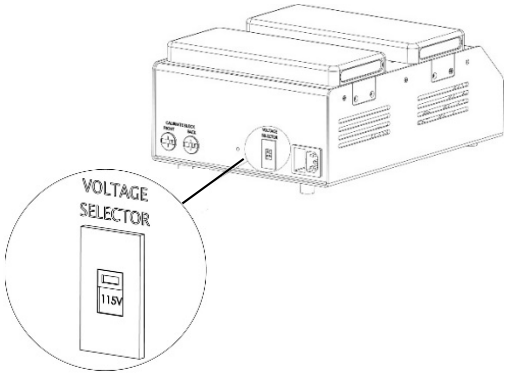
Ensure that the area where the system is installed meets the following conditions, for reasons of safety and performance:

Ambient temperature	+15 to +32°C (58 to 90°F)
Relative humidity	20 to 80% RH non-condensing
Air flow clearance	3 inches (8 cm) minimum on both sides

E. Voltage Selection and Fuse Type

The **CytoBrite Duo System** may be used with either 115V (US, Canada, Japan) or 230V electricity by sliding the voltage selector on the back of the instrument. Operating the system with the switch in the wrong position may damage the instrument and create a safety hazard. Before connecting the power cord verify that the switch is set to the correct voltage for your locality with the correct fuses installed:

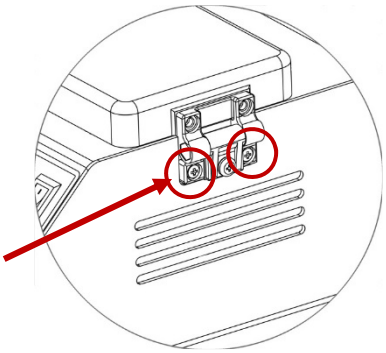
- 115 Voltage requires two 4 Amp fuses
- 230 Voltage requires two 2 Amp fuses



See section **IV. C. Checking and Replacing Fuses** for fuse replacement instructions.

To avoid a safety hazard or damage to the instrument, select the correct voltage and ensure the correct fuses are installed for your locality BEFORE connecting the power cord.

F. Lid Configuration



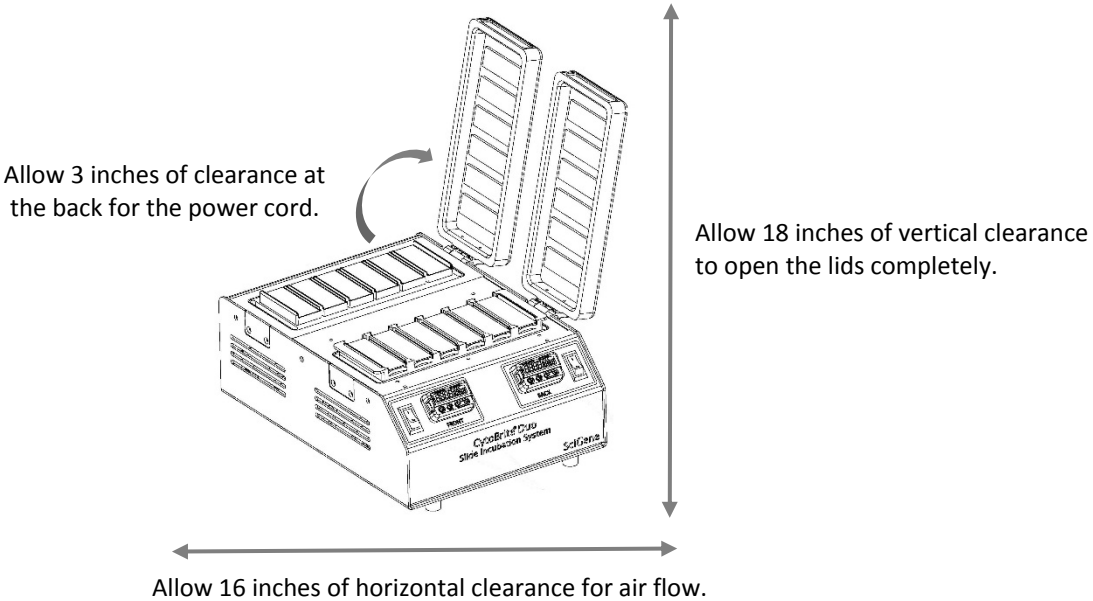
The lids covering the slide trays are configured at the factory to open to the right but can be easily switched to open in the opposite direction.

Follow these steps to re-configure one or both lids to open to the left:

1. Remove the bottom two screws holding the lid to the bracket on the right side of the instrument. Carefully lift the lid and set aside.
2. Remove the corresponding two screws on the left side of the instrument to release a small cover plate.
3. Turning the lid around, place it back on the instrument and secure it by replacing the bottom two screws of the bracket.
4. On the right side of the instrument, re-install the small cover plate with the two screws previously removed. Repeat steps 1 through 4 for the second lid, if desired.

G. Installation

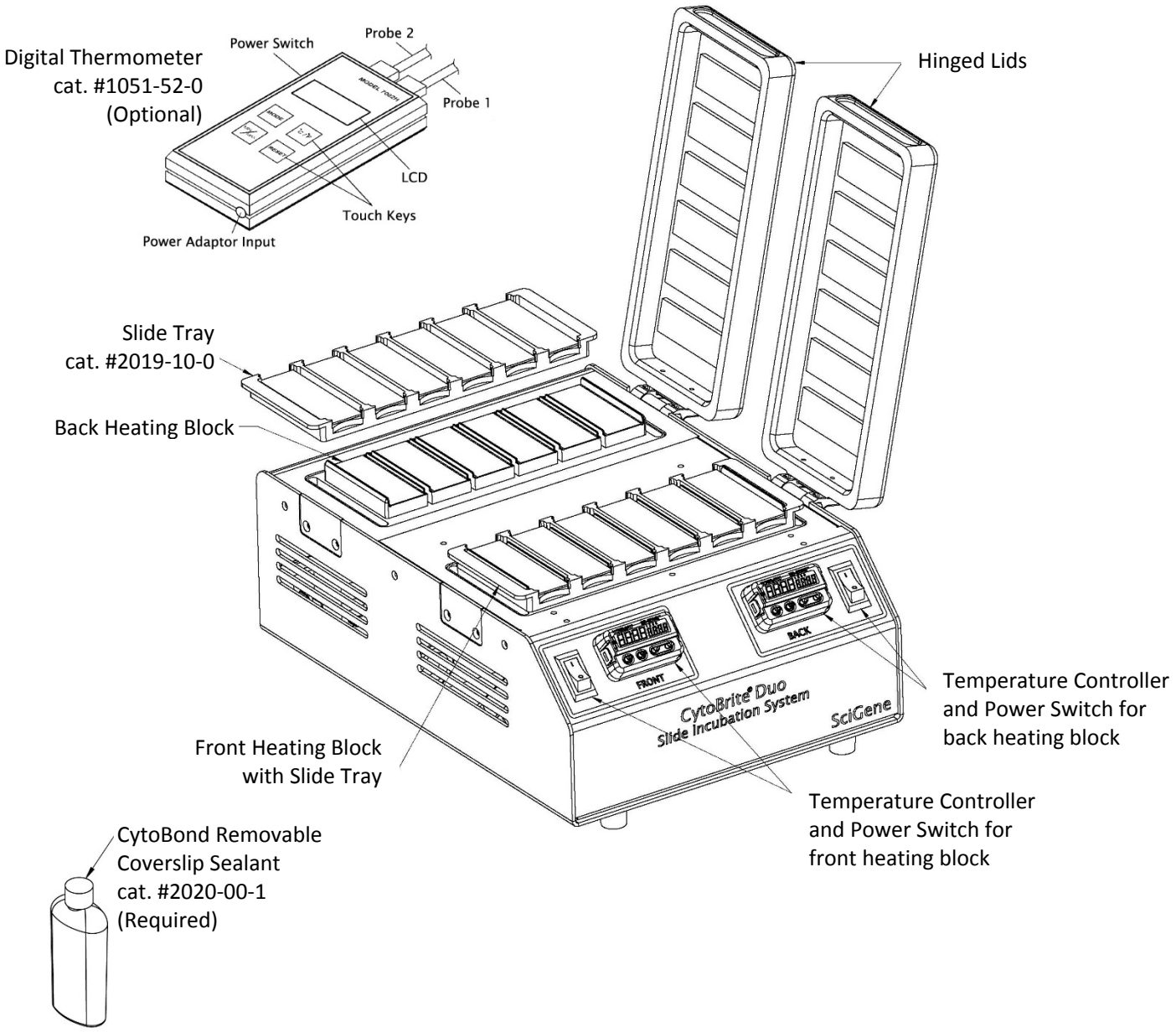
Place the instrument on a level surface within a few feet of the power source. Position the system so the lids can be easily opened without interference. Allow 18 inches of vertical clearance and 16 inches of horizontal clearance. Ensure 3 inches of clearance at the back to attach the power cord. Using only the power cord provided, plug it into the back of the unit and then to a properly grounded outlet. Turn on power to the block heaters using the ON/OFF switches on the front control panel.



III. USING YOUR CYTOBRITE DUO SYSTEM

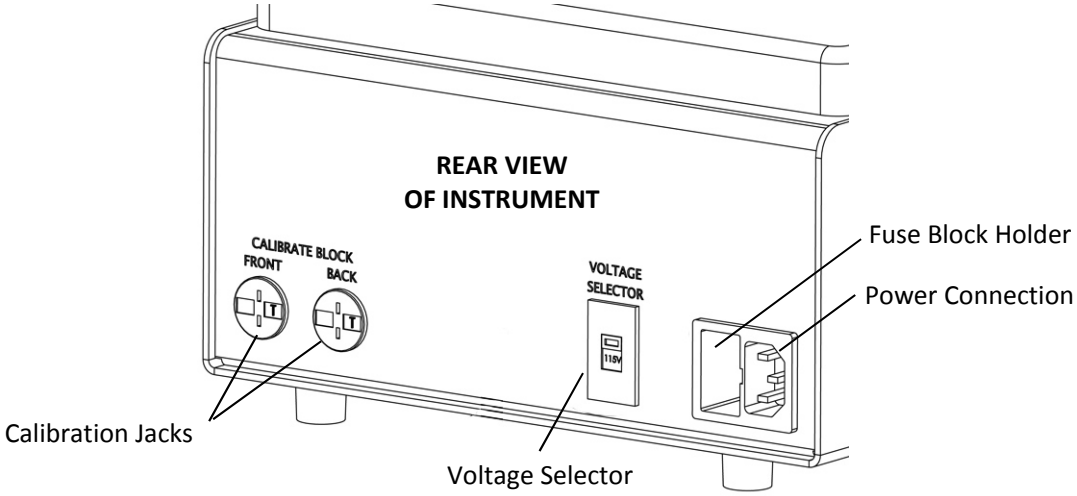
A. Main Components, Controls and Accessories

Name	Function
Power Switches	Turns ON/OFF power to the instrument.
Temperature Controllers	Used to set, control and observe block temperatures.
Hinged Lids	Covers the slides during sample incubation.
Heat Blocks (front and back)	Heats slides held in trays.
Slide Trays (2 included)	Holds slides for incubation.
CytoBond® Removable Coverslip Sealant	Seals coverslips to slides without humidification.
Digital Thermometer (optional)	Used to verify and calibrate block temperatures.



B. Voltage Selector and Connections

Name	Function
Calibration Jacks	Connects T-type thermometer to internal temperature sensor
Voltage Selector	Used to switch between 115 and 230 Volts for your locality
Power Connection	Connection for provided power cord
Fuse Block Holder	Holds removable block for replacing fuses



C. Using CytoBond Removable Coverslip Sealant

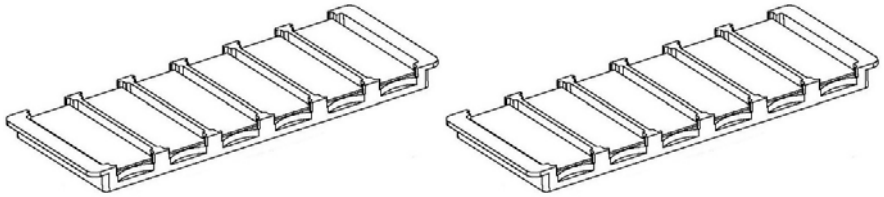
The **CytoBrite Duo System** eliminates the need for humidification with the use of **CytoBond Removable Coverslip Sealant** (SciGene cat. #2020-00-1). CytoBond is a gel-like adhesive applied to coverslips that temporarily seals them to slides.

Follow the steps below to prepare slides with **CytoBond Sealant**:

1. Apply a continuous bead around coverslips.
2. Wait 5 to 30 minutes.
3. Denature/incubate using your times/temperatures.
4. Remove in one clean piece with forceps.

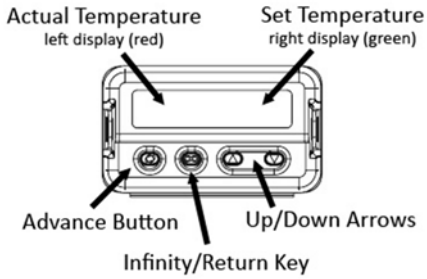
D. Handling Slide Trays

Two slide trays are included with the **CytoBrite Duo System**. Each removable tray holds 1 to 6 slides from assay setup to hybridization. To load a tray, hold its end tabs only (to avoid touching slides) and place the tray firmly onto the desired heat block such that all slides remain flat and level, in full contact of the block. Failure to properly insert the slide tray or slides may adversely affect performance.



Each tray holds 1 to 6 slides

E. Using the Temperature Controllers



The CytoBrite System is equipped with two Watlow EZ-Zone temperature controllers. Each controller has two LED displays and four push buttons. The left display shows ACTUAL block temperature in red. The right display shows the SET or programmed temperature in green. To enter the SET temperature, simply push the up and down arrows until the desired temperature is shown in the green display on the right. The unit will adjust the heat of the block until the SET temperature is attained.

F. Calibrating the Temperature Controllers

The controllers are calibrated at the factory to provide accurate block temperatures from ambient +5 to 90°C. Calibration is required ONLY if the block temperature differs by more than one degree (1°C) from the actual temperature on the controller when using a NIST-calibrated T-type digital thermometer (sold separately, SciGene cat. #1051-52-0).

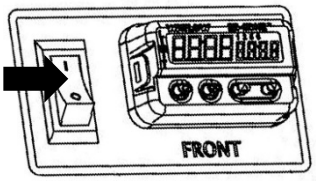
Follow these steps to adjust a controller to achieve accurate temperatures:

1. Turn ON the controller and set temperature to 60°C. Allow 15 minutes to stabilize.
2. Using the thermometer cable provided, plug one end into the corresponding blue jack on the back of the system and the other into the digital thermometer.
3. Turn on the thermometer and allow 1 minute to stabilize. Actual temperature is displayed.
4. Calculate the difference between the thermometer and the controller to determine the adjustment value. For example, if the thermometer reads 58.9°C while the controller reads 60°C, then the adjustment value is -1.1°C.
5. On the controller, press the up and down arrows simultaneously for 3 seconds. The left display shows "**A1**" and the right display shows "**open**".
6. Press the Advance Button (green circle) 3 times until the right display shows "**i.CA**". The left display will show the offset value when the unit was last calibrated.
7. Using the up or down arrows, add the calculated value from step 4 to the existing offset value. For example, if the adjustment value is -1.1°C and the current offset is -0.3°C then the new offset is -1.4°C.
8. Press the Infinity Key (∞) twice to exit calibration and return to the operation display. Verify that the thermometer matches the controller. Your system is now calibrated to provide accurate temperatures between ambient +5 and 90°C.

IV. MAINTAINING YOUR CYTOBRITE DUO SYSTEM

A. Powering Off

Turn OFF power to both front and back block heaters and unplug the power cord before performing any service procedure.



B. Cleaning the Instrument

Clean outer metal surfaces and the heated lid using a soft cloth and mild, detergent-based cleaner. Avoid abrasive cleaners that can scratch surfaces. Do NOT use caustic or strongly alkaline solutions (e.g., strong soaps, ammonia, or bleach). Clean the heat blocks to avoid buildup of residue that can interfere with the heat control system.

If running radioactive or biohazardous reactions, consult your institution's radiation safety officer or biosafety office for assistance.

Turn both power switches to the OFF position and unplug the power cord before performing any cleaning procedure!

Tournez les deux commutateurs d'alimentation sur la position OFF et débranchez le cordon d'alimentation avant d'effectuer toute opération de nettoyage!

Remove liquid or condensation (wipe dry) while instrument is OFF and at room temperature!

Enlever le liquide ou la condensation (essuyer), tandis que l'instrument est éteint et à la température ambiante!

C. Checking and Replacing Fuses

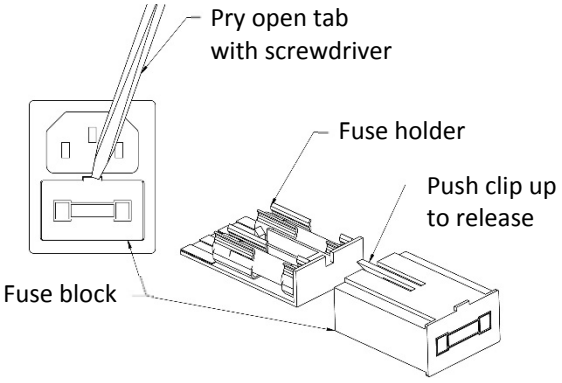
Two fuses are located in the removable block below the power cord receptacle on the back of the unit. Blown fuses will have a broken filament or appear dark. Always replace fuses with the same amperage and voltage as shown on the label below the fuse block.

Turn both power switches to the OFF position and unplug the power cord before performing any service procedure.

Tournez les deux commutateurs d'alimentation sur la position OFF et débranchez le cordon d'alimentation avant d'effectuer toute opération de service!

To remove fuses:

1. Insert a small, flat blade screwdriver into the tab recess just below the plug receptacle.
2. Push down to release the fuse block.
3. Slide fuse holder out from the fuse block while holding the retaining tab out of the way.
4. Gently pry out the fuses.



V. TROUBLESHOOTING

Symptom	Likely Cause	Solution
Instrument does not turn on.	Blown fuse(s)	Replace fuse(s) on back of unit, beneath power cord receptacle.
Controller is not responding when buttons are pressed.	Controller is faulty or is not properly programmed	Cycle unit on and off. Contact SciGene or your local distributor for support.

VI. SPECIFICATIONS

Electrical	
Cat. #2019-20-1	115/230V AC; 50/60 Hz; 4A/2A
Dimensions and Weight	
Outside (lids closed) H x W x D	6 x 10 x 13.5 inches (15 x 25.5 x 34 cm)
Weight	12 lbs (5.4 kg)
Performance and Controls	
Temperature Range	Ambient +5°C to 90°C
Temperature Regulation	± 0.2°C
Slide-to-slide Temp Variation	< 0.5°C
Preheat Time	< 15 minutes
Temperature Controllers	Digital PID
Temperature Displays	Actual or Set single LEDs
Digital Thermometer Output	T-Type Thermocouple

VII. RELATED INSTRUMENTS, REAGENTS AND ACCESSORIES

Cat. #	Description	UoM
2019-00-1	CytoBrite Slide Incubation System, 115V/230V. Includes two 6-slide racks.	EA
2019-70-1	CytoBrite Slide Oven, 115V. Includes ten 6-slide racks.	EA
2019-10-0	CytoBrite Slide tray. Holds 1 to 6 slides.	EA
2010-00-1	FISH Wash Buffer 1 (0.4xSSC/0.3% IGEPAL, pH 7).	EA
2010-00-2	FISH Wash Buffer 2 (2xSSC/0.1% IGEPAL, pH 7).	EA
2020-00-1	CytoBond Removable Coverslip Sealant, 100 ml.	EA
2022-00-2	CytoZyme Stabilized Pepsin, 50X Concentrate, 20 ml.	EA
2022-00-3	CytoZyme Stabilized Pepsin, 50X Concentrate, 100 ml.	EA
2022-10-2	CytoZyme Reaction Buffer, 1L.	EA
2022-10-3	CytoZyme Reaction Buffer, 4L.	EA
2030-00-1	Sodium Thiocyanate Pretreatment Reagent, 1L	EA
2030-00-2	Sodium Thiocyanate Pretreatment Reagent, 4L	EA
1051-52-0	Digital thermometer. Includes cable and NIST certificate	EA